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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,344	07/24/2003	Jong Soo Cho	YPL-PT015	9150

3624 7590 04/06/2005

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EXAMINER

ZIMMERMAN, JOHN J

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/626,344	CHO ET AL.	
	Examiner	Art Unit	
	John J. Zimmerman	1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

FIRST OFFICE ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-3 and 5 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 6,700,199 (common inventor with this pending application). Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the pending application require

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a gold alloy bonding wire for a semiconductor device having Au in a purity of 99.999% or greater and also containing B in an amount of 1-50 ppm (e.g. claim 1) with narrower claimed ranges of 2-30 ppm and 3-30 ppm (e.g. claims 4, 7 and 8); and further including Mg in an amount of 5-50 ppm (e.g. claim 1) with narrower claimed ranges of 3-30 ppm (e.g. claim 4, 7), 3-20 ppm (e.g. claim 8) and 5-20 ppm (e.g. claim 5). The element Ca may be added in amounts of 1-50 ppm (e.g. see claim 1) and the element Pd in amounts of 50-10,000 ppm (e.g. claim 1), 500-1,500 ppm (e.g. claim 4) and 100-10,000 ppm (e.g. claim 6). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a *prima facie* case of obviousness, see *In re Malagari*, 182 USPQ 549. The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to select the portion of the prior art's range which is within the range of applicant's claims because it has been held to be obvious to select a value in a known range by optimization for the best results, see *In re Aller, et al.*, 105 U.S.P.Q. 233. Although it is noted that U.S. Patent No. 6,700,199 may require additional constituents that are not required by the pending claims, the pending claims do not use closed language (e.g. "consisting of") and therefore clearly allow for additional unnamed constituents. The recitation of additional constituents in applicant's dependent claims is evidence that the claimed composition of the independent claim is intended to be open to additional constituents. Closing the claim language of the pending claims or deletion of the common Markush group elements (e.g. "B" and/or "Mg") will overcome this rejection.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1-3 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Moon (U.S. Patent No. 6,700,199 - different inventive entity than this pending application).

6. Moon discloses a gold alloy bonding wire for a semiconductor device having Au in a purity of 99.999% or greater and also containing B in an amount of 1-50 ppm (e.g. claim 1) with narrower claimed ranges of 2-30 ppm and 3-30 ppm (e.g. claims 4, 7 and 8); and further including Mg in an amount of 5-50 ppm (e.g. claim 1) with narrower claimed ranges of 3-30 ppm (e.g. claim 4, 7), 3-20 ppm (e.g. claim 8) and 5-20 ppm (e.g. claim 5). The element Ca may be added in amounts of 1-50 ppm (e.g. see claim 1) and the element Pd in amounts of 50-10,000

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ppm (e.g. claim 1), 500-1,500 ppm (e.g. claim 4) and 100-10,000 ppm (e.g. claim 6). The diameter of the gold alloy bonding wire can be 25 μm (e.g. see column 5, line 6-12). Although it is noted that Moon may require additional constituents that are not required by the pending claims, the pending claims do not use closed language (e.g. "consisting of") and therefore clearly allow for additional unnamed constituents. The recitation of additional constituents in applicant's dependent claims is evidence that the claimed composition of the independent claim is intended to be open to additional constituents. Closing the claim language of the pending claims or deletion of the common Markush group elements (e.g. "B" and/or "Mg") will overcome this rejection.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moon (U.S. Patent No. 6,700,199 - different inventive entity than this pending application).

9. Moon discloses a gold alloy bonding wire for a semiconductor device having Au in a purity of 99.999% or greater and also containing B in an amount of 1-50 ppm (e.g. claim 1) with narrower claimed ranges of 2-30 ppm and 3-30 ppm (e.g. claims 4, 7 and 8); and further

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including Mg in an amount of 5-50 ppm (e.g. claim 1) with narrower claimed ranges of 3-30 ppm (e.g. claim 4, 7), 3-20 ppm (e.g. claim 8) and 5-20 ppm (e.g. claim 5). The element Ca may be added in amounts of 1-50 ppm (e.g. see claim 1) and the element Pd in amounts of 50-10,000 ppm (e.g. claim 1), 500-1,500 ppm (e.g. claim 4) and 100-10,000 ppm (e.g. claim 6). The diameter of the gold alloy bonding wire can be 25 μm (e.g. see column 5, line 6-12). Although it is noted that Moon may require additional constituents that are not required by the pending claims, the pending claims do not use closed language (e.g. "consisting of") and therefore clearly allow for additional unnamed constituents. The recitation of additional constituents in applicant's dependent claims is evidence that the claimed composition of the independent claim is intended to be open to additional constituents. The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a *prima facie* case of obviousness, see *In re Malagari*, 182 USPQ 549. Although it is noted that Moon may not claim additions of La to his gold alloy bonding wire, Moon does disclose that it is known in the prior art that additions of La to gold bonding wires is known to result in ball grain refinement and increases bonding strength after high temperature heating (e.g. see column 1, lines 50-65). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add La to gold alloy bonding wires to obtain the desirable properties of ball grain refinement and increased bonding strength after high temperature heating. The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to select the portion of the prior art's range which is within the range of applicant's claims because it has been

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held to be obvious to select a value in a known range by optimization for the best results, see *In re Aller, et al.*, 105 U.S.P.Q. 233. Closing the claim language of the pending claims or deletion of the common Markush group elements (e.g. "B" and/or "Mg") will overcome this rejection.

10. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naito (Japanese publication 2000-040710).

11. Naito discloses a gold alloy bonding wire for a semiconductor device having Au in a purity exceeding 99.99% and also containing Pm and Ca in an amounts of 1-50 ppm (e.g. see paragraph [0006]); and including B in an amount of 3-100 ppm (e.g. paragraph [0007]). The element Mg may be added in amounts of 1-50 ppm (e.g. see paragraph [0012]). The diameter of the gold alloy bonding wire may not be specified, but it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the wires in conventional wire diameters currently used in the semiconductor industry in order to assure their compatibility with standard bonding equipment. Although it is noted that Naito may recite additional constituents that are not required by the pending claims, the pending claims do not used closed language (e.g. "consisting of") and therefore clearly allow for additional unnamed constituents. The recitation of additional constituents in applicant's dependent claims is evidence that the claimed composition of the independent claim is intended to be open to additional constituents. The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a *prima facie* case of

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obviousness, see *In re Malagari*, 182 USPQ 549. The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to select the portion of the prior art's range which is within the range of applicant's claims because it has been held to be obvious to select a value in a known range by optimization for the best results, see *In re Aller, et al.*, 105 U.S.P.Q. 233.

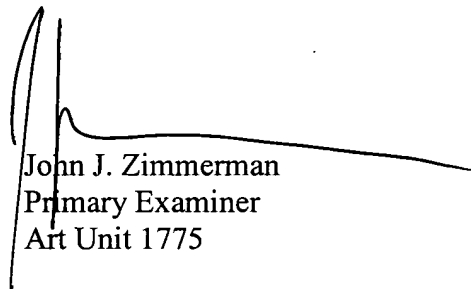
Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additionally cited references serve to further establish the level of ordinary skill in the art at the time the invention was made.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Zimmerman whose telephone number is (571) 272-1547. The examiner can normally be reached on 8:30am-5:00pm, M-F. Supervisor Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John J. Zimmerman
Primary Examiner
Art Unit 1775

jjz
March 31, 2005